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Response to Office Action of October 11, 2006  
U.S. Application No. 09/989,898  
Page 10

## REMARKS

### I. STATUS OF THE CLAIMS

Claims 25-31 are pending in the present application, prior to this Amendment. In the Office Action mailed October 11, 2006, claims 25-31 were rejected.

Claims 25 and 28 are amended hereby. Claims 32-58 are added. No new matter is presented by this amendment.

### II. CLAIM REJECTIONS UNDER 35 U.S.C. § 103(a)

In the Office Action, claims 25 and 27 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,003,610 to *Adachi* in view of European Patent No. 794520 to *Appalucci et al.* and U.S. Patent No. 3,913,219 to *Lichtblau*. Claims 26 and 28-31 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Adachi* in view of *Appalucci et al.* and *Lichtblau* and further in view of European Patent No. 840542 to *Graham et al.* These rejections are traversed. Nonetheless, to expedite prosecution of this application, claims 25 and 28 are amended hereby. In view of the amendments to claims 25 and 28, these rejections are obviated and should be withdrawn.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference or combination of references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicants' disclosure. *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP §2142.

#### A. *Adachi* and *Appalucci* cannot properly be combined.

There is no motivation to combine the teachings of *Adachi* and *Appalucci*, as attempted in the Office Action, and no reasonable expectation of success in doing so. *Adachi* and *Appalucci* seek to solve different problems and do so in a different manner from one

Response to Office Action of October 11, 2006  
U.S. Application No. 09/989,898  
Page 11

another. *Adachi* is directed to a whole surface driven speaker. In one embodiment, the speaker includes two separate coils, each being supported on a separate insulating sheet. The two insulating sheets are laminated to opposed surfaces of a single foamed mica plate (Fig. 4).

In sharp contrast, *Appalucci* is directed to a security tag for use with an electronic surveillance system. In the tag of *Appalucci*, "[a]t least one resonant circuit comprising a first conductive pattern is disposed on the substrate first surface, and a second conductive pattern is disposed on the substrate second surface" (col. 3, lines 18-21). The substrate of *Appalucci* is flexible (col. 5, line 47).

One would not look to a reference directed to a *flexible* structure including a *single layer substrate* with functional features on *each* side of the substrate (*Appalucci*, Figs. 1 and 3) to supplement the teachings of a reference directed to a *semi-rigid* structure including a *multilayer substrate* with functional features on only *one* side of each of the outer layers (*Adachi*, Fig. 4). Such structures could not possibly be formed using the same method. As such, there is no motivation to combine *Adachi* and *Appalucci*. For at least the same reason, there is no reasonable expectation that such a combination would be successful.

**B. Neither *Adachi* nor *Appalucci*, nor the combination thereof, teaches or suggests the claimed invention.**

Even if, *arguendo*, *Adachi* and *Appalucci* could be combined properly, the combination does not teach or suggest every element of Applicant's claimed invention. According to the Office Action,

*Adachi* teaches that metal thicknesses on opposite sides of a substrate are about equal (as shown in the figures; col. 4, lines 21-25 'mirror symmetry').

(Office Action, p. 3). Applicant disagrees.

First, *Adachi* does not explicitly teach, or even suggest, a method in which the thickness of a single functional feature is divided and placed on opposed sides of the same substrate. The mere fact that *Adachi* includes an embodiment with two coils is not sufficient to contemplate this aspect of Applicant's invention.

Response to Office Action of October 11, 2006  
U.S. Application No. 09/989,898  
Page 12

Thus, for example, with respect to claim 25, *Adachi* does not teach or suggest, *inter alia*:

applying a first etch-resistant pattern to a first metal-containing layer of the web, the first metal-containing layer being disposed on a first surface of a substrate consisting essentially of a polymer film, the first metal-containing layer being about one-half of a desired feature thickness, wherein at least a portion of the first pattern substantially defines a first part of the functional feature of the product unit;

applying a second etch-resistant pattern to a second metal-containing layer of the web, the second metal-containing layer being disposed on a second surface of the substrate opposite the first surface, the second metal-containing layer being about one-half of the desired feature thickness, wherein at least a portion of the second pattern substantially defines a second part of the functional feature of the product unit.

Likewise, with respect to claim 28, *Adachi* does not teach or suggest, *inter alia*:

applying a first patterned layer of sodium hydroxide-resistant material to a first aluminum layer disposed on a first surface of the substrate layer, the substrate layer consisting essentially of a polymer film, the first aluminum layer being about one-half of a desired feature thickness, wherein at least a portion of the first patterned layer substantially defines a first part of the functional feature;

applying a second patterned layer of sodium hydroxide-resistant material to a second aluminum layer disposed on a second surface of the substrate layer, the second aluminum layer being about one-half of a desired feature thickness, the second surface of the substrate layer being opposite the first surface and wherein at least a portion of the second patterned layer substantially defines a second part of the functional feature.

Further, the coils of *Adachi* are each supported on a *separate* insulating sheet. The two insulating sheets are laminated to opposite surfaces of a foamed mica plate. In contrast, the method of this invention includes dividing the thickness of a single functional feature on each side of a *single, flexible substrate*.

For example, as regards claim 25, *Adachi* does not teach or suggest, *inter alia*:

Response to Office Action of October 11, 2006  
U.S. Application No. 09/989,898  
Page 13

applying a first etch-resistant pattern to a first metal-containing layer of the web, the first metal-containing layer being disposed on a first surface of a substrate consisting essentially of a polymer film, the first metal-containing layer being about one-half of a desired feature thickness, wherein at least a portion of the first pattern substantially defines a first part of the functional feature of the product unit;

applying a second etch-resistant pattern to a second metal-containing layer of the web, the second metal-containing layer being disposed on a second surface of the substrate opposite the first surface, the second metal-containing layer being about one-half of the desired feature thickness, wherein at least a portion of the second pattern substantially defines a second part of the functional feature of the product unit.

Likewise, with respect to claim 28, *Adachi* does not teach or suggest, *inter alia*:

A method of effecting selective demetallization of a web containing a flexible substrate layer to make a singular functional feature having a desired feature thickness and composed of structures formed on each side of the substrate layer, the method comprising:

applying a first patterned layer of sodium hydroxide-resistant material to a first aluminum layer disposed on a first surface of the substrate layer, the substrate layer consisting essentially of a polymer film, the first aluminum layer being about one-half of a desired feature thickness, wherein at least a portion of the first patterned layer substantially defines a first part of the functional feature;

applying a second patterned layer of sodium hydroxide-resistant material to a second aluminum layer disposed on a second surface of the substrate layer, the second aluminum layer being about one-half of a desired feature thickness, the second surface of the substrate layer being opposite the first surface and wherein at least a portion of the second patterned layer substantially defines a second part of the functional feature.

Moreover, any method used to form the structure of *Adachi* actually teaches away from the method of Applicant's invention. The structure of *Adachi* includes separate layers of polymer film and simply cannot be formed using the presently claimed method. Further, the structure of *Adachi* requires the use of a somewhat rigid foamed mica plate, and

Response to Office Action of October 11, 2006  
U.S. Application No. 09/989,898  
Page 14

therefore, cannot be formed and/or processed in the same manner as a flexible web formed according to the claimed method.

*Appalucci* does not cure the deficiencies of *Adachi*. According to the Office Action,

*Appalucci* teaches a method for demetallizing a web 104 (Fig. 7) to make a single functional feature of a product unit (a security tag, Fig. 5).

(Office Action, p. 2). Applicant disagrees.

*Appaluchi* does not teach or suggest a method of making a method for demetallizing a web to make a *singular functional feature* of a product unit. In fact, the resonant circuit of *Appalucci* includes *more than one functional feature*, as described below:

[T]he resonant circuit 12 is formed by the combination of a single inductive element, inductor, or coil L electrically connected with a single capacitive element or capacitance C in a series loop. The inductive element L is formed by a coil portion 26 of the first conductive pattern 22. The coil portion 26 is formed as a spiral coil of conductive material on the first principal surface 16 of the substrate 14. The capacitive element C is comprised of a first plate formed by a generally rectangular land portion 28 of the first conductive pattern...

(col. 6, lines 36-46). It is well understood that a capacitor and an inductor have different functions and, therefore, are considered different functional features. Thus, it cannot be said that such elements comprise a single functional feature as defined by the present claims.

Further, *Appaluchi* does not teach or suggest apportioning the thickness of one or both of the elements to opposed sides of the substrate. Instead, the inductive element of *Appalucci* is on one side of the substrate and the capacitive element is located on the other side of the substrate (see Figs. 1 and 3). Thus, for the features of *Appalucci* to be pertinent to the pending claims, the thickness of the capacitive element and the inductive element would *each* have to be divided and positioned on each side of the substrate. Since this is not the case, the teachings of *Appalucci* are not applicable to this invention.

For example, with respect to claim 25, *Adachi* does not teach or suggest, *inter alia*:

A method for demetallizing a web to make a singular functional feature of a product unit, the singular functional

Response to Office Action of October 11, 2006  
U.S. Application No. 09/989,898  
Page 15

feature having a desired feature thickness and composed of structures formed on each side of the web, the method comprising:

applying a first etch-resistant pattern to a first metal-containing layer of the web, the first metal-containing layer being disposed on a first surface of a substrate consisting essentially of a polymer film, the first metal-containing layer being about one-half of a desired feature thickness, wherein at least a portion of the first pattern substantially defines a first part of the functional feature of the product unit;

applying a second etch-resistant pattern to a second metal-containing layer of the web, the second metal-containing layer being disposed on a second surface of the substrate opposite the first surface, the second metal-containing layer being about one-half of the desired feature thickness, wherein at least a portion of the second pattern substantially defines a second part of the functional feature of the product unit.

Likewise, with respect to claim 28, *Adachi* does not teach or suggest, *inter alia*:

A method of effecting selective demetallization of a web containing a flexible substrate layer to make a singular functional feature having a desired feature thickness and composed of structures formed on each side of the substrate layer, the method comprising:

applying a first patterned layer of sodium hydroxide-resistant material to a first aluminum layer disposed on a first surface of the substrate layer, the substrate layer consisting essentially of a polymer film, the first aluminum layer being about one-half of a desired feature thickness, wherein at least a portion of the first patterned layer substantially defines a first part of the functional feature;

applying a second patterned layer of sodium hydroxide-resistant material to a second aluminum layer disposed on a second surface of the substrate layer, the second aluminum layer being about one-half of a desired feature thickness, the second surface of the substrate layer being opposite the first surface and wherein at least a portion of the second patterned layer substantially defines a second part of the functional feature.

*Lichtblau* and *Graham* do not supplement the deficiencies of *Adachi* and *Appaluchi*.  
*Lichtblau* is directed to a process for forming circuits by printing on both sides of a substrate.

Response to Office Action of October 11, 2006  
U.S. Application No. 09/989,898  
Page 16

Like *Appalucci*, the circuits on each side of the substrate differ. *Graham* is directed to a method of forming capacitor electrodes using an etching process. A variety of etchants are taught, including sodium hydroxide. Thus, neither *Graham* nor *Lichtblau* teach or suggest a method of making single functional feature having a thickness apportioned to opposed sides of a substrate, as provided in the pending claims.

### III. NEW CLAIMS

New claim 32, generally directed to a method of forming a single functional feature, is believed to be allowable in that none of the cited references teach or suggest the method presented therein. New claims 33-38, which depend from claim 32, are also believed to be allowable on their own merit and/or because each claim adds an additional limitation or further defines the method recited in claim 32.

New claim 39, generally directed to a method of mitigating over-etching in forming a singular functional feature, is believed to be allowable in that none of the cited references teach or suggest the method presented therein. New claims 40-48, which depend from claim 39, are also believed to be allowable on their own merit and/or because each claim adds an additional limitation or further defines the method recited in claim 39.

New claim 49, generally directed to a method of forming a single functional feature, is believed to be allowable in that none of the cited references teach or suggest the method presented therein. New claims 50-58, which depend from claim 49, are also believed to be allowable on their own merit and/or because each claim adds an additional limitation or further defines the method recited in claim 49.

### CONCLUSION

In view of the foregoing remarks, Applicant respectfully submits that the various rejections of the claims set forth in the Office Action of October 11, 2006 have been addressed and overcome. Applicant further submits that all claims are in condition for allowance and request that a Notice of Allowance be issued. If issues may be resolved

Response to Office Action of October 11, 2006  
U.S. Application No. 09/989,898  
Page 17

through an Examiner's Amendment, or clarified in any manner, a call to the undersigned attorney at (404) 879-2437 is courteously solicited.

The Commissioner is hereby authorized to charge any fees due, or credit any overpayment, to Deposit Account No. 09-0528.

Respectfully submitted,



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